CLAIMS

1. A welding system with an ultrasonic welder for welding a plurality of webs together while carrying the webs, wherein

the ultrasonic welder comprises:

an anvil roller including a pair of anvils;

a first ultrasonic horn and a second ultrasonic horn that apply vibration energy to the webs in cooperation with the pair of anvils; and

carrying means for carrying the webs so that the webs pass a first gap between the anvil roller and the first ultrasonic horn and then pass a second gap between the anvil roller and the second ultrasonic horn,

the first and second ultrasonic horns are arranged so that one anvil of the pair can face the first ultrasonic horn at the same time as the other anvil of the pair faces the second ultrasonic horn, and

the first and second ultrasonic horns apply the vibration energy to the webs simultaneously while each of the anvils faces the first or second ultrasonic horn,

wherein the pair of anvils are provided symmetrically with each other with respect to an axis line of the anvils roller.

2. A welding system according to claim 1, comprising a velocity-changing device for increasing and decreasing a moving velocity of the webs, wherein

by the velocity-changing device, the moving velocity of the

webs at the first and second gaps when the first and second ultrasonic horns apply the vibration energy to the webs is set smaller than that at a position where the webs enter into the velocity changing device and/or that at a position where the webs exit from the velocity-changing device.

3. A welding system according to claim 2, wherein

the velocity-changing device comprises:

a first dancer roller that receives the webs flowing from an upstream side and releases the webs toward the first gap;

a second dancer roller that receives the webs flowing from the second gap and releases the webs toward a downstream side; and

moving means for moving the first and second dancer rollers, wherein

the moving means can move the first roller and the second roller in generally opposite directions with each other so that the moving velocity of the webs is increased and decreased.

4. A welding system according to claim 2, wherein

the velocity-changing device comprises:

a first dancer roller that receives the webs flowing from an upstream side and releases the webs toward the first gap;

a second dancer roller that receives the webs released from the second gap and releases the webs toward a downstream side;

moving means for moving the first and second dancer rollers; and

a first driving means for rotatably driving the first and

second dancer rollers.

5. A welding system according to claim 4, wherein

a distance between the first and second dancer rollers is substantially equal to or smaller than a diameter of the anvil roller.

6. A welding system according to claim 4, further comprising a timing belt trained around a plurality of rollers including the first and second dancer rollers and a drive roller, for rotating the plurality of rollers in synchronism,

7. A welding system according to claim 6, further comprising:

a drive roller which the timing belt is trained about, the drive roller rotatably driven by the first driving means;

a second driving means for rotatably driving the adjustment roller; and

a control device that controls the moving means, the first driving means and the second driving means so that both of a circumferential velocity of the adjustment roller and a circumferential velocity of the drive roller are equal to the moving velocity of the webs between the first and second dancer rollers.

8. A welding system according to claim 1, wherein

when each anvil of the pair faces the first ultrasonic horn or the second ultrasonic horn, the first and second ultrasonic horns are controlled to apply the vibration energy to the webs so that ultrasonic welding of the webs is performed, and

when the ultrasonic welding of the webs is not performed, the first and second ultrasonic horns are controlled not to apply the vibration energy to the webs.

9. A welding system according to claim 1, wherein

the carrying means comprises: a adjustment roller that is rotatably supported; supporting means for rotatably supporting the adjustment roller selectively at a first position or a second position that is different from the first position, and

the webs having passed the first gap flow along an outer circumferential surface of the adjustment roller, and then are carried into the second gap, wherein

when a semi-finished product including the webs is to be processed into a worn article of a first size, the adjustment roller is supported at the first position by the supporting means, and

when the semi-finished product including the webs is to be processed into a worn article of a second size that is different from the first size, the adjustment roller is supported at the second position by the supporting means.

10. A welding system according to claim 9, wherein

an angular velocity of the anvil roller can be controlled so that, according to the size of the worn article to be produced, one anvil of the pair can face the first ultrasonic horn at the first gap at the same time as the other anvil of the pair faces the second ultrasonic horn at the second position.

11. A welding system according to claim 1, wherein

when either anvil of the pair faces the first ultrasonic horn, the first ultrasonic horn applies the vibration energy to a portion of the webs, and

when either anvil of the pair faces the second ultrasonic

horn, the second ultrasonic horn applies the vibration energy once again to the portion of the webs where the vibration energy has been applied by the first ultrasonic horn.

12. A welding system according to claim 1, wherein

when either anvil of the pair faces the first ultrasonic horn, the first ultrasonic horn applies the vibration energy to a portion of the webs, to which portion the vibration energy by the second ultrasonic horn is not to be applied, and

when either anvil of the pair faces the second ultrasonic horn, the second ultrasonic horn applies the vibration energy to another portion of the webs where the vibration energy by the first ultrasonic horn is not applied.